REMARKS

This Amendment is filed in response to the Office Action dated May 12, 2006. This application should be allowed and the case passed to issue. No new matter is raised by this amendment. The amendments to claim 1 are supported by claim 13 and Fig. 5, and the accompanying portions of the specification. Claim 14 is amended to maintain proper dependency. The specification is amended to correct a misspelling.

Claims 1-12 and 14-25 are pending in this application. Claims 1-25 have been rejected. Claims 1 and 14 are amended. Claim 13 is canceled.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-5 and 9-12, 15, 16, and 19-25 were rejected under 35 U.S.C. § 102(e) as being anticipated by Girt et al. (U.S. Pat. No. 6,777,112). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the invention as claimed, and the cited prior art.

An aspect of the invention, per claim 1, is an anti-ferromagnetically coupled, granular-continuous ("AFC-GC") magnetic recording medium comprising a layer stack formed on a surface of a non-magnetic substrate. The magnetic recording medium includes a continuous ferromagnetic stabilizing layer, a non-magnetic spacer layer in contact with the continuous ferromagnetic stabilizing layer, and a granular ferromagnetic layer in contact with the non-magnetic spacer layer. The granular ferromagnetic layer comprises a CoCrPt-X' material, where X' is selected from the group consisting of: oxides, nitrides, and carbides, and adjacent magnetic grains are substantially magnetically isolated from each other. The continuous ferromagnetic stabilizing layer and the granular ferromagnetic layer are anti-ferromagnetically coupled across the non-magnetic spacer layer. The amount of anti-ferromagnetic coupling is preselected to

ensure magnetic relaxation after writing. Lateral interactions in the granular, ferromagnetic recording layer are substantially completely eliminated or suppressed and the exchange coupling strength in the continuous ferromagnetic stabilizing layer is preselected to be larger than the strength of the anti-ferromagnetic coupling provided by the non-magnetic spacer layer to thereby enhance thermal stability of the recording bits.

The Examiner asserted that Girt et al. disclose a magnetic recording medium including a continuous ferromagnetic stabilizing layer, a non-magnetic spacer layer, and a granular ferromagnetic layer, wherein the continuous ferromagnetic layer and the granular ferromagnetic layer are anti-ferromagnetically coupled. The Examiner considered the "amount of anti-ferromagnetically coupling preselected to ensure magnetic relaxation after writing" to be an intended use limitation. The Examiner asserted that the exchange coupling strength in the continuous ferromagnetic stabilizing layer is preselected to be larger than the strength of the anti-ferromagnetic coupling provided by the non-magnetic spacer layer to thereby enhance thermal stability of the recording bits limitation to be inherent or obvious in the prior art because the prior art is either identical or substantially identical.

Girt et al., however, do not anticipate the claimed magnetic recording medium because Girt et al. do not suggest the AFC-GC magnetic recording medium wherein granular ferromagnetic layer comprises a CoCrPt-X' material, where X' is selected from the group consisting of: oxides, nitrides, and carbides, as required by claim 1.

Applicants further traverse the Examiner's assumption that the "amount of anti-ferromagnetically coupling preselected to ensure magnetic relaxation after writing" is an intended use limitation. On page 6 of the Office Action, the Examiner apparently mistakenly asserted that Applicants argue that this limitation is an intended use limitation. The record is

clear that it is Examiner who argued that this limitation is an intended use limitation (see pages 6 and 14 of the December 15, 2005 Office Action). To the contrary, this is a structural limitation, as the amount of anti-ferromagnetically coupling required has to ensure magnetic relaxation after writing.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Girt et al. do not disclose the magnetic recording medium wherein the granular ferromagnetic layer comprises a CoCrPt-X' material, where X' is selected from the group consisting of: oxides, nitrides, and carbides, as required by claim 1. Girt et al. do not anticipate claim 1.

Applicants further submit that Girt et al. do not suggest the claimed anti-ferromagnetically coupled, granular-continuous ("AFC-GC") magnetic recording medium.

Claim Rejections Under 35 U. S. C. § 103

Claims 1-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ikeda et al. (U.S. Pat. No. 6,468,670) in view of Oikawa et al., Carey et al. (U.S. Pat. No. 6,280,813), and Applicants' alleged admissions. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner asserted that Ikeda et al. disclose a magnetic recording medium comprising a continuous ferromagnetic layer and a granular magnetic layer. The Examiner acknowledged that Ikeda et al. do not disclose the continuous and granular magnetic layers are anti-ferromagnetically coupled. The Examiner averred that Carey et al. disclose anti-ferromagnetically coupled layers to achieve high recording density. Though Ikeda et al. is directed to perpendicular media and Carey is directed to longitudinal media, the Examiner alleged that Applicants admitted that perpendicular and longitudinal medium structures are art recognized equivalent media structures.

It would not have been obvious to combine Ikeda et al., Oikawa et al., and Carey et al. in the manner asserted by the Examiner. Contrary to the Examiner's assertions, Applicants have not admitted that the different types of magnetic recording media are functional equivalents. The Examiner indicated that such an admission was made on page 5 and 6 of the instant specification. However, there is clearly no such admission made on pages 5 and 6 that the different media types are known equivalent AFC media. To the contrary, Applicants disclose on pages 2-3 of the specification, that perpendicular magnetic recording media are superior to longitudinal magnetic recording media. The Examiner has not pointed out with particularity where Applicants have admitted that the different media types were functional equivalents. Rather, the Examiner merely provides a conclusory statement without any supporting evidence. Clearly, the Examiner's assertion that Applicants have admitted that the different media types are functionally equivalent is erroneous.

The Examiner has apparently interpreted "conventional" to mean "equivalent." Interpreting conventional to mean equivalent is not proper. Apples and oranges can be considered conventional fruits, but they are clearly not equivalent fruits as illustrated by the well-

known expression, "comparing apples and oranges." Therefore, while Applicants have described perpendicular and longitudinal recording media as conventional, Applicants did not admit that perpendicular and longitudinal recording media were art-known equivalents.

Although two types of recording media may be conventional, the prior art must suggest substituting one for the other. That two articles are known is not sufficient motivation to assert that it would have been obvious to substitute one for the other.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Ikeda et al., Oikawa et al., and Carey et al. to combine the references as asserted by the Examiner to provide the magnetic recording medium, as required by claim 1.

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but must stem from the applied prior art as a whole and realistically impel one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, the Examiner is charged with the initial burden of identifying a source in the applied prior art for the requisite realistic motivation. *Smiths Industries Medical System v. Vital Signs, Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999); *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1449 (Fed. Cir. 1997). There is no motivation in Ikeda et al., Oikawa et al., and Carey

et al. to combine the references as asserted by the Examiner to provide the magnetic recording medium, as required by claim 1.

The only teaching of the claimed anti-ferromagnetically coupled, granular-continuous ("AFC-GC") magnetic recording medium is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner's retrospective assessment of the claimed invention and use of unsupported conclusory statements are not legally sufficient to generate a case of *prima facie* obviousness. The motivation for modifying the prior art must come from the prior art and must be based on facts. The Examiner is not free to ignore the judicial requirement for **facts**. To do so is legal error. *In re Lee,* 277 F.3d 1338 (Fed. Cir. 2002).

Claims 1, 2, 4, 5, 9-14, and 19-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fullerton et al. (U.S. Pat. No. 6,383,668) in view of Oikawa et al. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner averred that Fullerton et al. disclose a magnetic recording medium comprising a continuous ferromagnetic layer 36, a non-magnetic spacer layer, and a second ferromagnetic layer 25, wherein the continuous ferromagnetic layer and second ferromagnetic layer are anti-ferromagnetically coupled. The Examiner acknowledged that Fullerton et al. do not disclose that the second ferromagnetic layer is discontinuous. The Examiner relied on the teaching of Oikawa et al. to conclude that it would have been obvious to have a discontinuous second ferromagnetic layer to provide high coercive force at low cost.

The combination of Fullerton et al. and Oikawa et al., however, do not suggest the claimed AFC-GC recording medium. Fullerton et al. do not suggest that the Examiner-asserted

non-magnetic spacer layer contacts the Examiner-asserted continuous ferromagnetic stabilizing layer and that the non-magnetic spacer layer contacts the Examiner-granular ferromagnetic layer, as required by claim 1.

The instant claims are further distinguishable over Fullerton et al. and Oikawa et al. because neither Fullerton et al. nor Oikawa et al. suggest the magnetic recording medium wherein the exchange coupling strength in the continuous ferromagnetic stabilizing layer is preselected to be larger than the strength of the anti-ferromagnetic coupling provided by the non-magnetic spacer layer to thereby enhance thermal stability of the recording bits, as required by claim 1.

Claims 6-8, 17, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fullerton et al. in view of Oikawa et al. and further in view of Applicants' alleged admissions. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The combination of Fullerton et al., Oikawa et al. and Applicants' alleged admissions do not suggest the claimed magnetic recording media. As explained infra, Applicants have made no such admission that the different media types were functional equivalents.

Claims 15 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fullerton et al. in view of Oikawa et al. and further in view of Igarashi et al. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The combination of Fullerton et al., Oikawa et al., and Igarashi et al. do not suggest the claimed magnetic recording media because Igarashi et al. do not cure the deficiencies of Fullerton et al. and Oikawa et al. Igarashi et al. do not suggest the claimed structure of the magnetic recording medium.

The dependent claims are allowable for at least the same reasons as independent claim 1 and further distinguish the claimed magnetic recording medium.

In view of the above amendments and remarks, Applicants submit that this case should be allowed and passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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